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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,736	02/24/2004	James H. Shaffner	B-4958NP 621373-2	2748
36716	7590	05/03/2005	EXAMINER	
LADAS & PARRY 5670 WILSHIRE BOULEVARD, SUITE 2100 LOS ANGELES, CA 90036-5679			GLENN, KIMBERLY E	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

**Office Action Summary**

Application No.

10/786,736

Applicant(s)

SHAFFNER ET AL.

Examiner

Kimberly E. Glenn

Art Unit

2817

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7-13, 19, 20 and 22 is/are rejected.
- 7) ☒ Claim(s) 3-6, 14-18, 21, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/04/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

### DETAILED ACTION

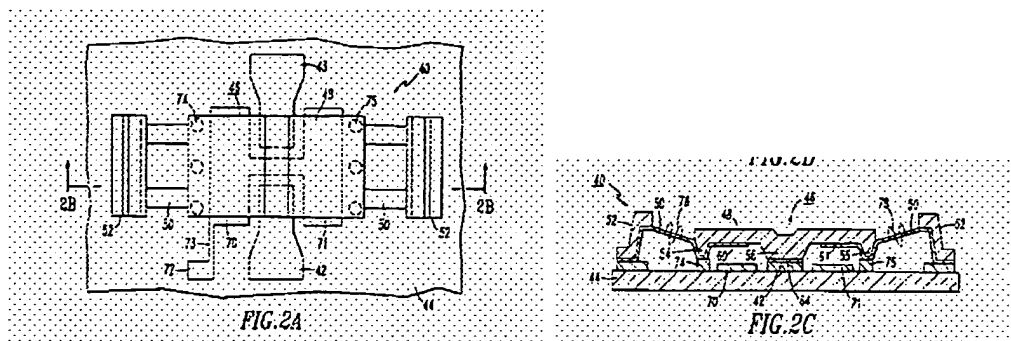
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 8, 12 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Dickens et al US Patent 6,657,525.

Dickens discloses in figures 2A through 2C an improved MEMS switch 40 comprising of first and second RF conductors 42 and 43 deposited on a substrate 44. A bridge structure 46 having a central stiffener portion 48 is located above the RF conductors. The central stiffener portion 48 is vertically moveable by virtue of metallic flexible spring arms 50 connected to respective support members 52. The undersurface of bridge structure 48 includes an electrical contact 64, which completes the electrical connection between first and second RF conductors 42 and 43 when the switch 40 is activated. The RF conductor comprises of a tapered section that extends from a narrow portion of the RF conductor to a wide portion of the RF conductors.



### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 7, 9-12 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loo et al US Patent 6,046,659. (of record)

Loo et al discloses in figure 3 a MEM switch 10'. The MEM switch comprises of a conducting transmission line 28, an input line 20, an output line 18, an armature bias electrode 30, an armature bias pad 34, substrate bias pad 36, an armature 16 and a substrate 14. Examiner considers the input line and the output line to be the RF line. With the conducting transmission line represents the RF contact.

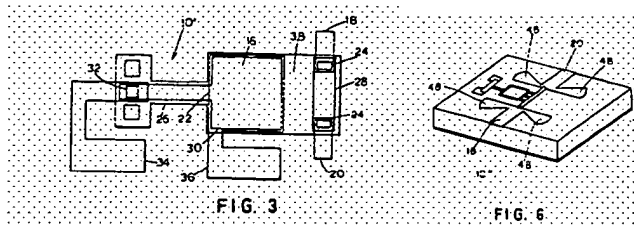
The conducting transmission line 28 is located on the underside of the beam structural layer 26 and is not connected directly to either the input line 20 or the output line 18. The armature bias electrode 30 covers the majority of the underside of the armature 16 and the beam structural layer 26. One end of the armature 16 is affixed directly to the

substrate 14. The free end of the armature 16 rests over both the input line 20 and the output line 18. The conducting transmission line 28 is located on the free end of the armature 16, also above both the input line 20 and the output line 18. When a voltage is applied between the substrate bias electrode 22 and the armature bias electrode 30, the armature 16 will bend towards the substrate 14. This forces the conducting line 28 into electrical contact with both the input line 20 and the output line 18. Signals can then pass from the input line 20 to the output line 18 through the conducting transmission line 28. A positive or negative voltage is placed on either the armature bias pad 34 or substrate bias pad 36 and a ground signal is placed on the other. Therefore, whichever pad receives the ground signal is considered the ground plane.

Thus Loo et al is shown to teach all the limitation of the claims with the exception of the RF line having at least one protuberance or hump adjacent to at least one RF contact.

Loo et al further discloses in figure 6, that the switch 10" presents an inductive reactance when placed in series with the 50 ohm through line. In order to match the impedance of the switch 10" to the 50-ohm line, a shunt capacitance is added to the device. The shunt capacitance, in one embodiment of the design, can be realized by adding a microstrip radial stub 48 to both the input line 20 and the output line 18. The stubs 48 are angled away from the MEM switch to avoid series capacitive coupling between the stubs 48. The resulting circuit acts as a lowpass filter. The stubs project away from the conducting transmission line.

Therefore one of ordinary skill in the art at the time of the invention would have found it obvious to provide the MEM switch of figure 3 with the radial stubs 48 as shown in figure 6. The motivation for this modification would have been to provide impedance matching.



### ***Allowable Subject Matter***

Claims 3-6, 14-18, 21, 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

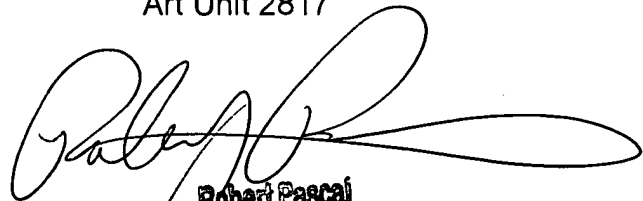
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly E. Glenn whose telephone number is (571)-272-1761. The examiner can normally be reached on Monday-Friday 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kimberly E Glenn  
Examiner  
Art Unit 2817

keg



**Robert Pascal**  
**Supervisory Patent Examiner**  
**Technology Center 2800**